

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-28 are pending in this application. Claims 1, 7, 9-10 and 12-14 are amended, and Claims 15-28 are new. Support for the changes to the claims is found in the originally filed disclosure, including the original claims, the specification at least in paragraphs [0112], [0133] and [0162]-[0166] of the application as published and the drawings at least in Figures 14-16. Therefore, it is respectfully submitted no new matter is added.

In the outstanding Office Action, Claims 7-10 and 12-14 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. 2004/0023658 (Karabinis); and Claims 1-6 and 11 were rejected under 35 U.S.C. § 103(a) as unpatentable over Karabinis in view of U.S. 5,974,324 (Henson).

As currently amended, Claim 1 recites:

A frequency channel assignment system comprising a plurality of radio communications systems ***which use a common frequency band in a common geographical area***, and a controller, the controller comprising:
a system characteristics information management function configured to manage system characteristics information showing characteristics of frequency channels in the radio communications systems; and
a frequency channel assignment function configured to assign the frequency channels to each of the radio communications systems, based on the system characteristics information and channel status information showing status of the frequency channels, so as to avoid inter-system interference,
the controller determining, within a range of the common frequency band and based on the system characteristics information and the channel status information:
a first occupied use frequency band which includes first frequency channels available only to a first radio communications system,
a second occupied use frequency band which includes second frequency channels available only to a second radio communications system, and
an overlapping use frequency band which includes third frequency channels available to the first and second radio communications systems.
[Emphasis added].

As emphasized above, Claim 1 defines a frequency channel assignment system which includes a controller. The controller determines, within a range of a common frequency band and based on system characteristics information and channel status information, first and second occupied use frequency bands and an overlapping use frequency band. The first frequency band includes first frequency channels available only to a first radio communications system, whereas the second frequency band includes second frequency channels available only to a second radio communications system. The overlapping use frequency band includes third frequency channels available to both the first and second radio communications systems. It is respectfully submitted the art of record is deficient in disclosing or reasonably suggesting these features.

Karabinis describes a system and method of operation for reusing and/or sharing a portion of frequency spectrum between a satellite spot beam and a second satellite spot beam, and/or an underlay terrestrial network associated with the second satellite spot beam.¹ Further, Karabinis describes that assignment of frequencies can be based on load and/or capacity issues in the spot beams. However, Karabinis is silent regarding what the load and/or capacity issues are and merely infers that signal to interference ratios can be used in determining an order in which frequencies are assigned, used, and/or shared.²

Additionally, Karabinis describes channel separation as being performed according to a cluster method, where the clusters represent different physical/geographic locations.³ On the other hand, as amended in Claim 1, the radio communications systems use a common frequency band in a common geographical area. Contrary to the teachings of Karabinis, Claim 1 requires (1) a first communications system to use a first occupied use frequency band (which includes first frequency channels available only to the first radio communications system), (2) a similar arrangement for a second occupied use frequency band, and (3) an

¹ Karabinis, Abstract.

² Karabinis, paragraph [0161].

³ Karabinis, e.g., Figures 8 and 17.

overlapping use frequency band which includes third frequency channels available to both the first and second radio communications systems.

Karabinis merely describes, for example, first circular spot beams and spot beam overlaps.⁴ These overlap regions represent the only common geographical area described in Karabinis. However, these overlap areas do not include an overlapping use frequency band which includes third frequency channels available for use of first and second radio communications systems, as required by Claim 1. Additionally, Karabinis does not segregate frequency channel use based on different radio communications systems. As noted above, Karabinis merely segregates use based on geographical location.

None of the other cited references remedy the above-identified deficiencies in Karabinis. Therefore, it is respectfully submitted Claim 1 (and any claim depending therefrom) is allowable over the art of record. Further, although varying in scope and/or directed to different statutory classes, it is respectfully submitted Claims 7, 9-10 and 12-14 (and any claims depending therefrom) are also allowable over the cited references for substantially similar reasons as noted above regarding Claim 1. Accordingly, it is respectfully submitted the outstanding rejections should be withdrawn.

Claims 15 and 16 are new and depend from Claim 1. Claim 15 further defines the controller as assigning first frequency channels included in the first occupied use frequency band or the third frequency channels included in the overlapping use frequency band to mobile stations included in the first radio communications system. Claim 15 also provides similar provisions for the second radio communications system and mobile stations included therein. It is respectfully submitted the art of record is deficient in disclosing or reasonably suggesting these features. Therefore, it is respectfully submitted Claim 15 is further allowable over the art of record by virtue of these features.

⁴ Karabinis, Figure 11b, elements 1170, 1172, 1174, 1176, 1178 and 1180.

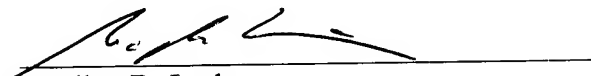
Claim 16 recites aspects of searching whether there is unused frequency channels and assigning the unused frequency channels to mobile stations in the first occupied use frequency band and the overlapping use frequency band. It is respectfully submitted the art of record is also deficient in disclosing or reasonably suggesting these features. Accordingly, it is respectfully submitted Claim 16 is further allowable over the art of record by virtue of these features.

Although varying in scope and dependent upon different base claims, it is respectfully submitted Claims 17-28 are also further allowable over the art of record for similar reasons as noted above regarding Claim 15 or 16.

Consequently, it is respectfully submitted no other issues remain pending in this application and this application is thus in condition for allowance. Should the Examiner disagree, the Examiner is encouraged to contact the undersigned to discuss any remaining issues. Otherwise, a timely Notice of Allowance is respectfully requested.

Respectfully submitted,

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